

**Wednesday, November 5, 2014**  
**PLENARY SESSION II**  
**9:00 a.m. / Building 34 -Conference Room W150**

**Chairs:** **M. Grande (Aberystwyth U., UK)**  
**C. Nixon (GSFC)**

- 9:00 a.m. Grotzinger J. P. \* Science Team M. S. L.  
Geologic, geochemical and mineralogic framework for Aeolis Palus bedrock, and its relationship to Mt. Sharp, Mars [#1135]  
Curiosity's instruments have documented an impressive set of sedimentary and igneous rock compositions, preserved as part of fluvial-deltaic-lacustrine environment, indicating a habitable paleoenvironment at Gale crater.

**Wednesday, November 5, 2014**  
**INSTRUMENTATION FOR NEXT GENERATION ORBITERS (I)**  
**9:30 a.m. / Building 34 -Conference Room W150**

**Chairs:** **M. Grande (Aberystwyth U., UK)**  
**C. Nixon (GSFC)**

- 9:30 a.m. Grasset O. \* Altobelli N. Barabash S. Iess L. Jaumann R. et al.  
The Jupiter Icy Moons Explorer (JUICE): Complementarity Of The Payload In Addressing The Mission Science Objectives. [#1141]  
Invited Speaker.
- 9:50 a.m. Bergsrud C. M. \* Straub J.  
Using Space Solar Power Satellites to Aid in Planetary Science Discovery and Exploration [#1000]  
This paper presents an overview of the space solar power satellite technology, and its application to planetary science missions. It details how it can drive lower costs and discusses prospective cost savings in the context of two example missions.
- 10:05 a.m. Korth H. \* Strohhahn K. Kitching J.  
Miniature Absolute Scalar Magnetometer Based on the Rubidium Isotope  $87\text{Rb}$  [#1016]  
Presented is a low-resource, miniaturized, absolute scalar magnetometer based on the isotope  $87\text{Rb}$ , which has a mass of <500 g and uses 0.5 W of power, while maintaining sensitivity comparable to present state-of-the-art absolute magnetometers.
- 10:20 a.m. Mariani G. \* Kenyon M.  
Radiometric Mapping of Europa: Challenges of Building a Radiation-Hardened, Uncooled, Far-Infrared Thermal Imager [#1017]  
Thermopile technology integrated with state-of-the-art readout chips provides a far-infrared, uncooled, radiation-hardened, thermal imaging solution to conduct accurate radiometric measurements of Europa.

- 10:35 a.m. Darrach M. \* Farley K. Madzunkov S. Nikolic D. Niedholdt E. et al.  
Mass Analyzer for Real-time Investigation of Neutrals at Europa (MARINE) [#1018]  
 Presented herein is a summary of the Mass Analyzer for Real-time Investigation of Neutrals at Europa (MARINE). MARINE new mass analyzer for analysis the exospheres of planets, moons, and primitive bodies, such as found at Europa or Enceladus.
- 10:50 a.m. **COFFEE BREAK**
- 11:10 a.m. Griggs C. E. \* Paik H. J. Moody M. V. Han S. C. Rowlands D. D. et al.  
Levitated Superconducting Gravity Gradiometer for Planetary Missions [#1021]  
 We are developing an accurate tensor superconducting gravity gradiometer for planetary missions. A new and innovative design gives a sensitivity  $< 1 \text{ mE Hz}^{(-1/2)}$  in the measurement band 1 mHz to 0.1 Hz for a device with a baseline just over 10 cm.
- 11:25 a.m. Chattopadhyay G. \* Reck T. J. Tang A. Jung-Kubiak C. Lee C. et al.  
Silicon Micromachined High-Resolution Terahertz Spectroscopic Instrument for Planetary Missions [#1022]  
 Using newly developed silicon micromachining technology we are developing a low-mass and highly integrated state-of-the-art terahertz radiometer/spectrometer instrument for planetary orbiter missions to Mars, Venus, Titan, and the Galilean moons.
- 11:40 a.m. Sternovsky Z. \* Gruen E. Horanyi M. Kempf S. Maute K. et al.  
Hyperdust: Advanced instrument for the in-situ detection and chemical analysis of cosmic dust particles [#1023]  
 The Hyperdust instrument is developed for future missions for the composition and trajectory analysis of interstellar and interplanetary particles, as well as surface composition analysis of airless planetary objects.
- 11:55 a.m. Lingenauber K. \* Hussmann H. Michaelis H. Oberst J. Kobayashi M. et al.  
The Ganymede Laser Altimeter (GALA) on ESA's JUICE mission: Overview of the Instrument Design. [#1029]  
 ESA's Jupiter Icy Moons Explorer (JUICE) will launch in 2022 and arrive at Jupiter in 2029. The Ganymede Laser Altimeter (GALA) will focus on geodetic and geophysical investigations of the icy satellites Europa, Callisto and Ganymede.
- 12:10 p.m. **LUNCH BREAK**

**Wednesday, November 5, 2014**  
**INSTRUMENTS ON FUTURE MARS LANDERS (I)**  
**9:30 a.m. / Building 34- Conference Room W120 A&B**

**Chairs:** **R. Jaumann (DLR, Germany)**  
**C. Stahle (GSFC)**

9:30 a.m. Mahaffy P. R. \* Arevalo R. Brinckerhoff W. B. Caartwright J. A. Conrad P. G. et al.  
*AGES: A Noble Gas Mass Spectrometer for Future in Situ Cosmic Radiation Exposure Age and K-Ar Chronology Investigations* [#1028]

The AGES mass spectrometer proposed for a future Mars, Lunar, asteroid, or Phobos mission provides definitive in situ measurements of cosmogenically and radiogenically produced noble gases to implement in situ chronology investigations.

9:45 a.m. Sinclair J. A. \* Wilson E. L. Irwin P. G. J. Calcutt S.  
*Detecting trace species in the Martian atmosphere with a gas correlation filter radiometer* [#1038]

We present the potential of a gas correlation radiometer in detecting trace gases in the Martian atmosphere, such as methane and sulphur dioxide. These species would serve as tracers of geological, and perhaps biological activity on Mars.

10:00 a.m. Schmitz N. \* Jaumann R. Coates A. J. Griffiths A. D. Leff C. E. et al.  
*PanCam on the ExoMars 2018 Rover: A Stereo, Multispectral and High-Resolution Camera System to Investigate the Surface of Mars* [#1053]

The ExoMars rover will carry a Panoramic Camera System ("PanCam") being designed to obtain high-resolution colour and wide-angle multi-spectral stereoscopic panoramic images from the rover mast.

10:15 a.m. Yu H. \* Garnero E. Fouch M.  
*Molecular Electronic Transducers Based Micro-Seismometers for Planetary Exploration* [#1055]

A Molecular Electronic Transducers based micro seismometers are under development, which are robust (orientation independent and high shock tolerant) with low power, low mass, and relatively low cost and can be deployed flexibly across a broad range.

10:30 a.m. Lorenz R. D. \*  
*Micropower Instrumentation Needs for an RHU-powered Mars Mini-Network Mission* [#1062]

A network of affordable Mars landers ('MASER') able to operate year-round is enabled by a radioisotope heater units (RHU) power system (~200mWe) Continuous seismic and wind measurements require new instrument designs able to operate on ~50mW.

11:50 a.m. **COFFEE BREAK**

11:05 a.m. Rafkin S. C. R. \* Banfield D. Nowicki K. Silver J. Dissly R.  
*An Instrument to Measure Turbulent Fluxes in the Atmosphere of Mars and Other Planets* [#1063]

A newly developed instrument capable of simultaneously measuring turbulent fluxes in planetary atmospheres has been developed. The focus to date has been for Mars, but can be adapted to other atmospheres such as Venus, Titan, and gas or ice giants.

- 11:20 a.m. Arruego I. \*  
*A Roadmap for the Development of Miniature Instrumentation for Mars Exploration.* [#1068]  
We report on a 10-year initiative to set up a number of resources for the development of miniature instruments for Planetary Exploration. Thanks to it, we are involved in 2 Mars exploration missions: Mars MetNet Lander and ExoMars 2016 EDM.
- 11:35 a.m. Olcott Marshall A.    Marshall C. P. \*  
*Challenges facing Raman spectroscopy on Mars: Lessons from an Earth based analog* [#1070]  
Here we explore the best excitation wavelength ranging from UV, Vis, and NIR for Raman analysis of samples from a Mars analog.
- 11:50 a.m. Apestigue V. \*    Jiménez J. J.    Martínez J.    Álvarez F. J.    Rivas J.    et al.  
*DREAMS-SIS: A Miniature Instrument for the Measurement of Atmospheric Optical Depth on ExoMars2016 EDM.* [#1075]  
The DREAMS-SIS sensor, a miniature photometer that will be part of the DREAMS payload package on board ExoMars 2016 EDM, is presented. We report on the design, development, calibration and qualification processes, as well as present status.
- 12:05 p.m. **LUNCH BREAK**